

Remarks

The Office Action dated August 23, 2007 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-3, 7, 9-10, 14-17, and 19-21 are pending in this application. Claims 1-4, 7, 9-11, 14, and 15 stand rejected. Claims 4 and 11 have been cancelled. Claims 16, 17, and 19-21 are allowed.

The rejection of Claims 1-4, 7, 9-11, and 14-15 under 35 U.S.C. § 112, second paragraph, is respectfully traversed.

Claims 4 and 11 have been canceled.

Claim 1 has been amended to recite "pleating the treated substrate, after curing the treated substrate, at a temperature above the application temperature."

Claim 9 has been amended to recite "pleating the treated substrate, after curing the treated substrate, at a temperature of about 430°F."

Accordingly, Applicant submits that 1-3, 7, 9-10, and 14-15 are definite and particularly point out and distinctly claim the subject matter which Applicant regards as his invention.

For the reasons set forth above, Applicants respectfully request that the Section 112, second paragraph, rejection of Claims 1-4, 7, 9-11, and 14-15 be withdrawn.

The rejection of Claim 9 under 35 U.S.C. § 112, first paragraph, is respectfully traversed.

Claim 9 has been amended to recite "about 430°F". Applicant submits that paragraph 40 provides support for this amendment. Particularly, paragraph 40 describes "the temperature during pleating is raised to approximately 430°F dependent on the particular polyimide used".

For the reasons set forth above, Applicants respectfully request that the Section 112, first paragraph, rejection of Claim 9 be withdrawn.

The rejection of Claims 1, 3-4, and 7 under 35 U.S.C. § 103(a) as being unpatentable over Wyss (European Patent Application EP 0 726 348) is respectfully traversed.

Wyss describes a gas permeable fabric made from a porous substrate that is treated with a mixture of a fluoropolymer and a polyamideimide which is useful at temperatures of 200°C to 280°C for extended periods. The fluoropolymer and a polyamideimide mixture is applied to the substrate and cured at 200°C and then pleated at a temperature of 200°C to 250°C. Notably, Wyss does not describe nor suggest a polyimide stiffening agent selected from the group consisting of polyetherimides and polybismaleimides. Wyss does not describe nor suggest that the treated fabric is capable of withstanding at least 100,000 cleaning pulses at a temperature of about 375°F, a flowrate of about 1200 cubic feet per minute, and a pressure of about 60psi.

Independent Claim 1 of the present application recites "[a] method of making a filter medium for use in a filtering application at an application temperature comprising: providing a substrate; providing a polyimide stiffening agent in solution selected from the group consisting of polyetherimides and polybismaleimides; diluting the polyimide stiffening agent solution to approximately 5.5% solids; treating the substrate with the polyimide stiffening agent solution; curing the treated substrate; and pleating the treated substrate, after curing the treated substrate, at a temperature above the application temperature, wherein the application temperature is greater than about 375°F; wherein the treated substrate with the polyimide stiffening agent is capable of withstanding at least 100,000 cleaning pulses at a temperature of about 375°F, a flowrate of about 1200 cubic feet per minute, and a pressure of about 60psi."

Wyss does not describe nor suggest a method as recited in Claim 1. Particularly, Wyss does not describe nor suggest a method that includes providing a polyimide stiffening agent selected from the group consisting of polyetherimides and polybismaleimides. Rather, Wyss describes applying a fluoropolymer and a polyamideimide mixture to the substrate. Wyss does not describe nor suggest the use of polyetherimides and polybismaleimides. Accordingly, Applicant submits that independent Claim 1 is patentable over Wyss.

Claim 4 has been canceled.

Claims 3 and 7 depend from independent Claim 1. When the recitations of dependent Claims 3 and 7 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 3 and 7 likewise are patentable over Wyss.

For the reasons set forth above, Applicants respectfully request that the Section 103(a) rejection of Claims 1, 3-4, and 7 be withdrawn.

The rejection of Claims 2 and 9-11, and 14-15 under 35 U.S.C. § 103 as being unpatentable over Wyss in view of Fukata (US 4,454,189) or Nakahara (European Patent Application EP 1096057) is respectfully traversed.

As explained above, Wyss does not describe nor suggest a method as recited in Claim 1. Fukata is cited for teaching calendering fabric that will be made into a filter to compact the fabric and give it wet strength. Fukata is not cited for, and does not teach a method that includes providing a polyimide stiffening agent selected from the group consisting of polyetherimides and polybismaleimides. Fukata does not describe nor suggest any stiffening agent.

Nakahara is cited for teaching a calendering step in the formation of a heat resistant fabric formed from polyphenylene sulfide fibers. Nakahara is not cited for, and does not teach a method that includes providing a polyimide stiffening agent selected from the group consisting of polyetherimides and polybismaleimides. Rather, Nakahara describes a thermosetting resin selected from the group consisting of epoxy resins, acrylic resins, melamine resins, phenol resins, vinyl ester resins, and unsaturated polyester resins.

Wyss, Fukata, and Nakahara, alone or in combination, do not describe nor suggest a method as recited in Claim 1. Particularly, Wyss, Fukata, and Nakahara, alone or in combination, do not describe nor suggest a method that includes providing a polyimide stiffening agent selected from the group consisting of polyetherimides and polybismaleimides. Rather, Wyss describes applying a fluoropolymer and a polyamideimide mixture to the substrate. Wyss does not describe nor suggest the use of polyetherimides and polybismaleimides. Fukata does not describe nor suggest any stiffening agent. Nakahara describes a thermosetting resin selected from the group consisting of epoxy resins, acrylic resins, melamine resins, phenol resins, vinyl ester resins, and unsaturated polyester resins. Accordingly, modifying the teachings of Wyss with the teachings of Fukata or Nakahara does not teach all the elements of Claim 1. Accordingly, Applicants submit that independent Claim 1 is patentable over Wyss, Fukata, and Nakahara, alone or in combination.

Claim 2 depends from independent Claim 1. When the recitations of dependent Claim 2 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claim 2 likewise is patentable over Wyss, Fukata, and Nakahara, alone or in combination.

Independent Claim 9 of the present application recites "[a] method of making a filter medium for use in a filtering application at an application temperature comprising: providing a polymer substrate; calendering the polymer substrate; providing a polyimide stiffening agent in solution selected from the group consisting of polyetherimides and polybismaleimides; diluting the polyimide stiffening agent solution to approximately 5.5% solids; treating the calendered polymer substrate with the polyimide stiffening agent solution; curing the treated polymer substrate; and pleating the treated substrate, after curing the treated substrate, at a temperature of about 430°F, wherein the treated polymer substrate with the polyimide stiffening agent is capable of withstanding at least 100,000 cleaning pulses at a temperature of about 375°F, a flowrate of about 1200 cubic feet per minute, and a pressure of about 60psi."

Wyss, Fukata, and Nakahara, alone or in combination, do not describe nor suggest a method as recited in Claim 9. Particularly, and at least for the reasons explained above, Wyss, Fukata, and Nakahara, alone or in combination, do not describe nor suggest a method that includes providing a polyimide stiffening agent selected from the group consisting of polyetherimides and polybismaleimides. Rather, Wyss describes applying a fluoropolymer and a polyamideimide mixture to the substrate. Wyss does not describe nor suggest the use of polyetherimides and polybismaleimides. Fukata does not describe nor suggest any stiffening agent. Nakahara describes a thermosetting resin selected from the group consisting of epoxy resins, acrylic resins, melamine resins, phenol resins, vinyl ester resins, and unsaturated polyester resins. Accordingly, modifying the teachings of Wyss with the teachings of Fukata or Nakahara does not teach all the elements of Claim 9. Accordingly, Applicants submit that independent Claim 9 is patentable over Wyss, Fukata, and Nakahara, alone or in combination.

Claim 11 has been canceled.

Claims 10, 14, and 15 depend from independent Claim 9. When the recitations of Claims 10, 14, and 15 are considered in combination with the recitations of Claim 9, Applicant submits that dependent Claims 10, 14, and 15 likewise are patentable over Wyss, Fukata, and Nakahara, alone or in combination.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Favorable action is respectfully solicited.

Respectfully submitted,



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